



Title: Method for Manufacturing and
Assembly of Hot Runner Systems
Serial No.: 10/720,017
Inventor: Fischer et al.
Page 1 of 44

FIG. 1

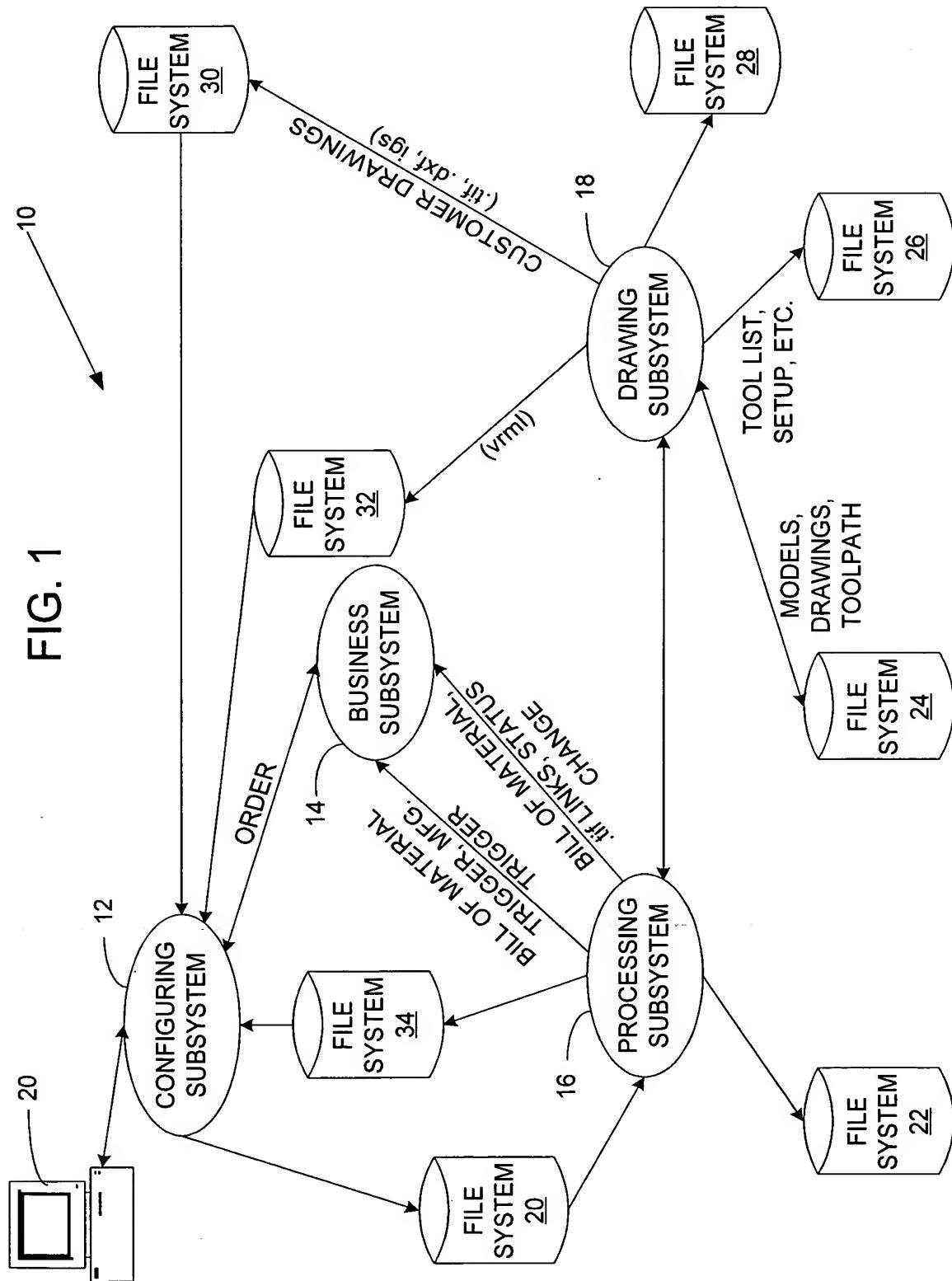
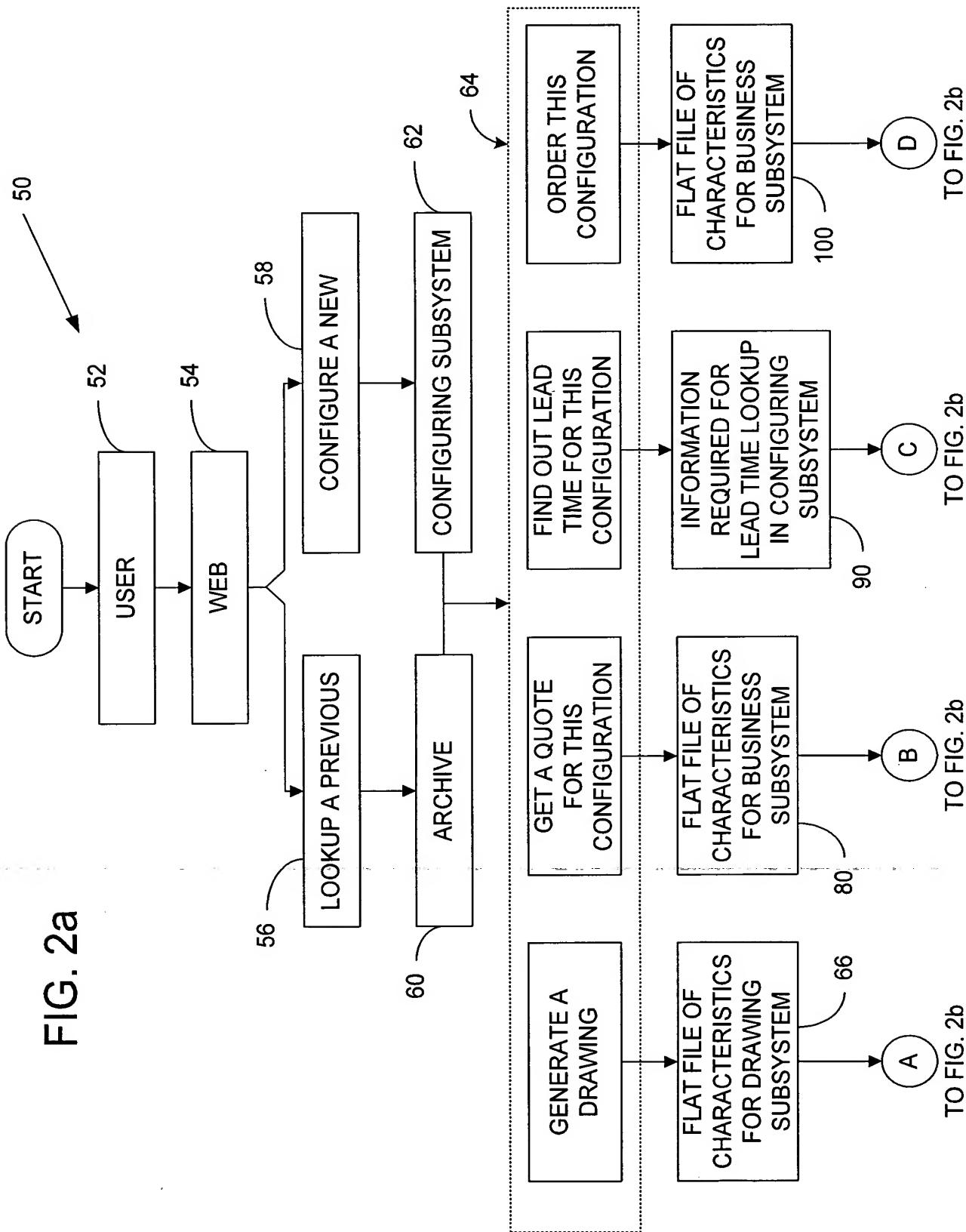


FIG. 2a



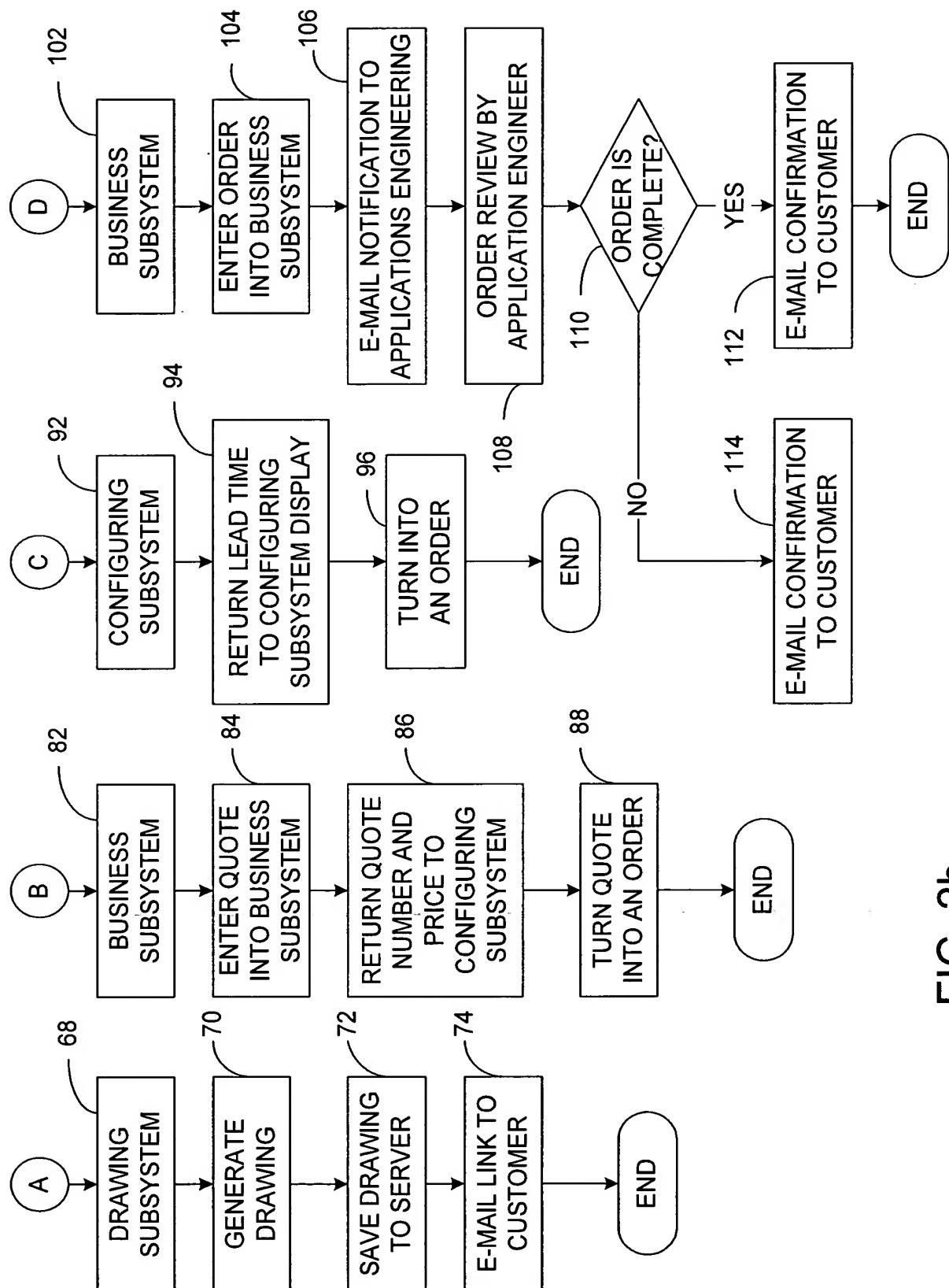


FIG. 2b

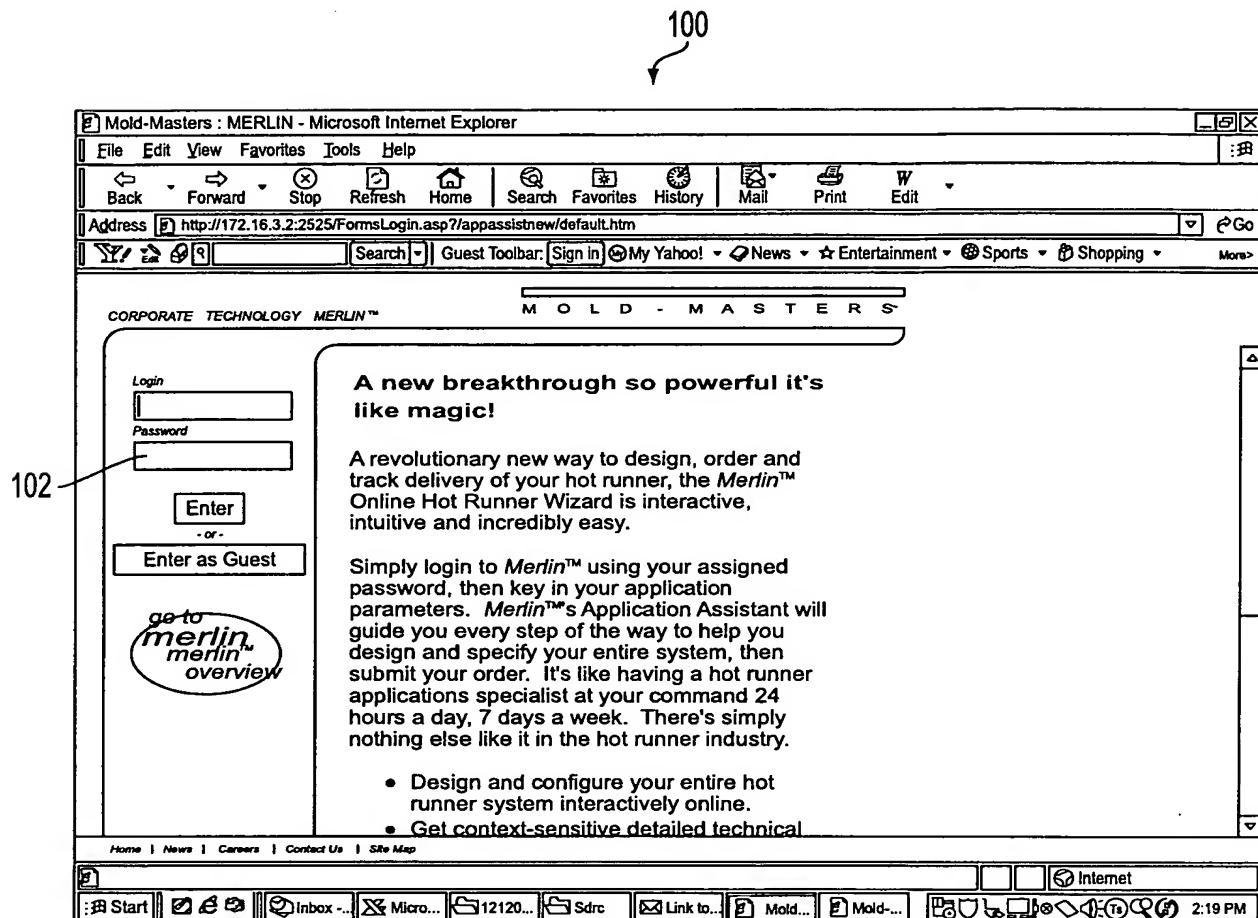


FIG. 3

110

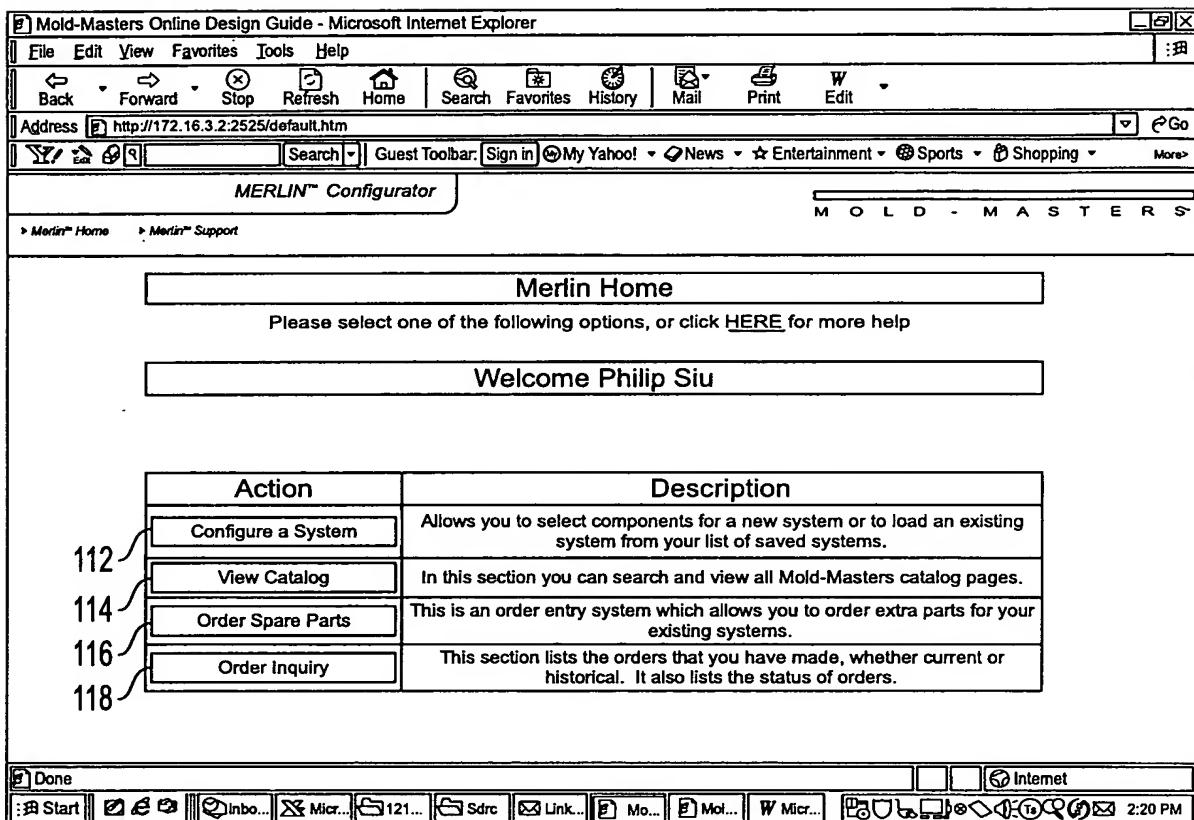


FIG. 4

120

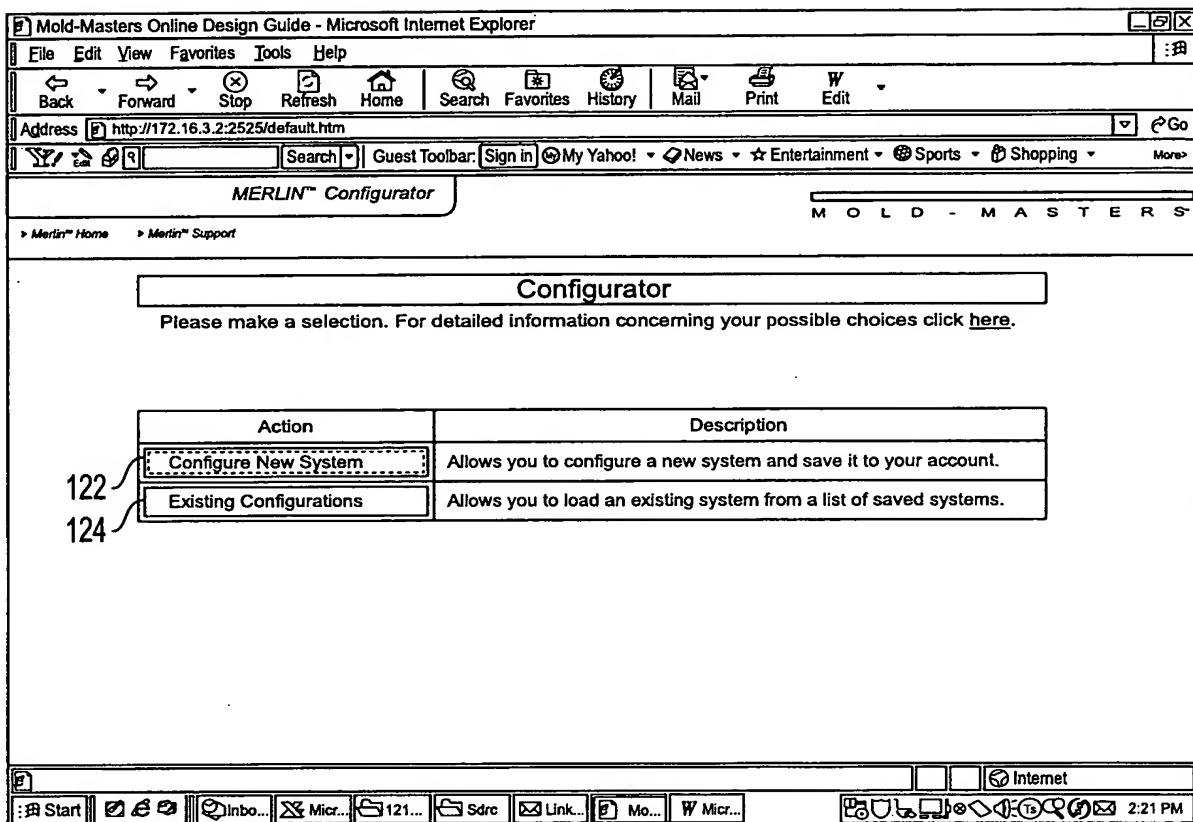


FIG. 5

130

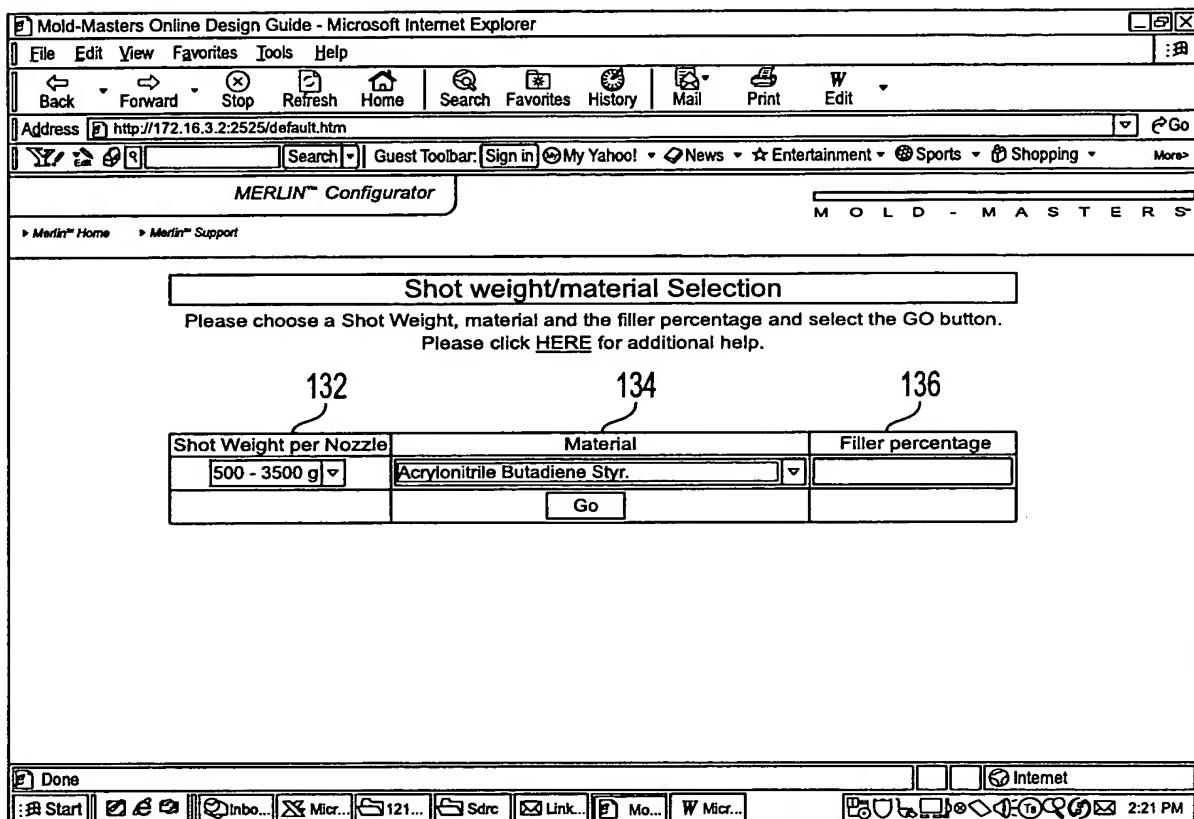


FIG. 6

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Product Line Selection

Please select a product line by clicking the button below it. Click [here](#) to find out more information.

Previous Step

Dura™ 142

MIM Dura-Shot® 144

MIM Speed™ 146

Flex Dura™ System 147

The diagram shows four different hot runner system configurations. From left to right: 1) Dura™, featuring a circular manifold with multiple vertical runners; 2) MIM Dura-Shot®, showing a similar design but with integrated MIM technology; 3) MIM Speed™, which appears to be a more complex, multi-directional manifold; and 4) Flex Dura™ System, depicting a system where the manifold is mounted onto a mold cavity.

Mold Masters established Dura product line of hot runner systems.

The MIM Dura-Shot® range of products is based on Mold-Masters established Dura know-how, but with the added advantages of MIM technology.

Specify, Design and Order your MIM Speed Hot Runner System - Online to provide the fastest delivery of the hot runner system to your specification.

The Flex Dura product line was developed specifically for the automotive and large part molding industries.

FIG. 7

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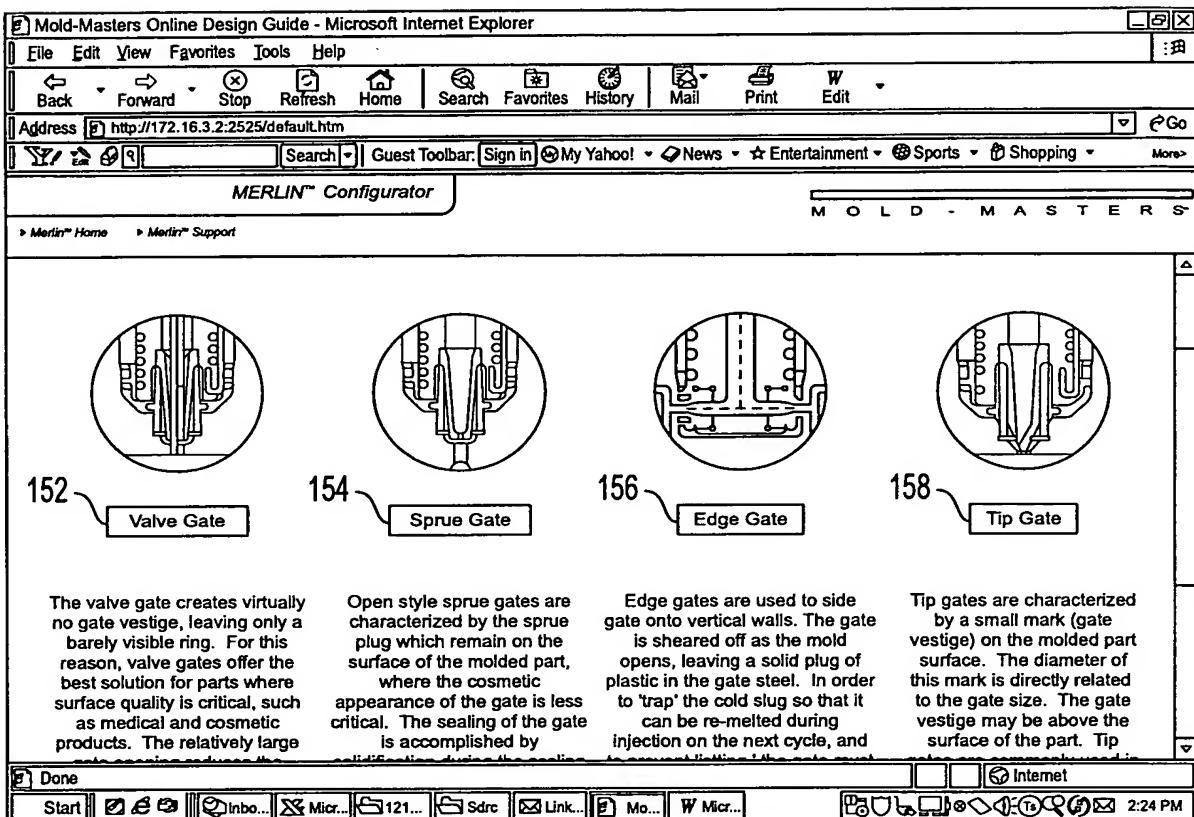


FIG. 8

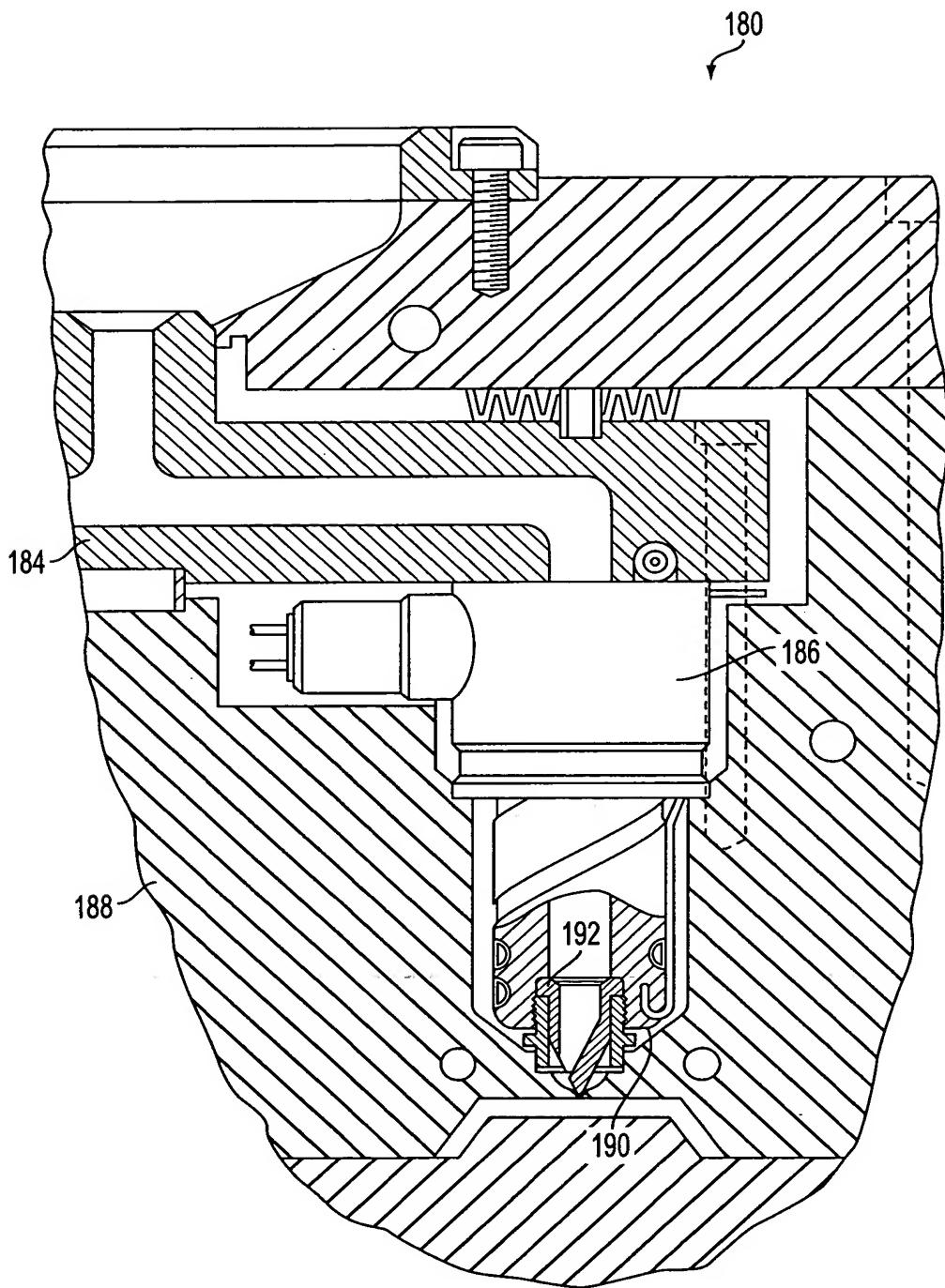


FIG. 10

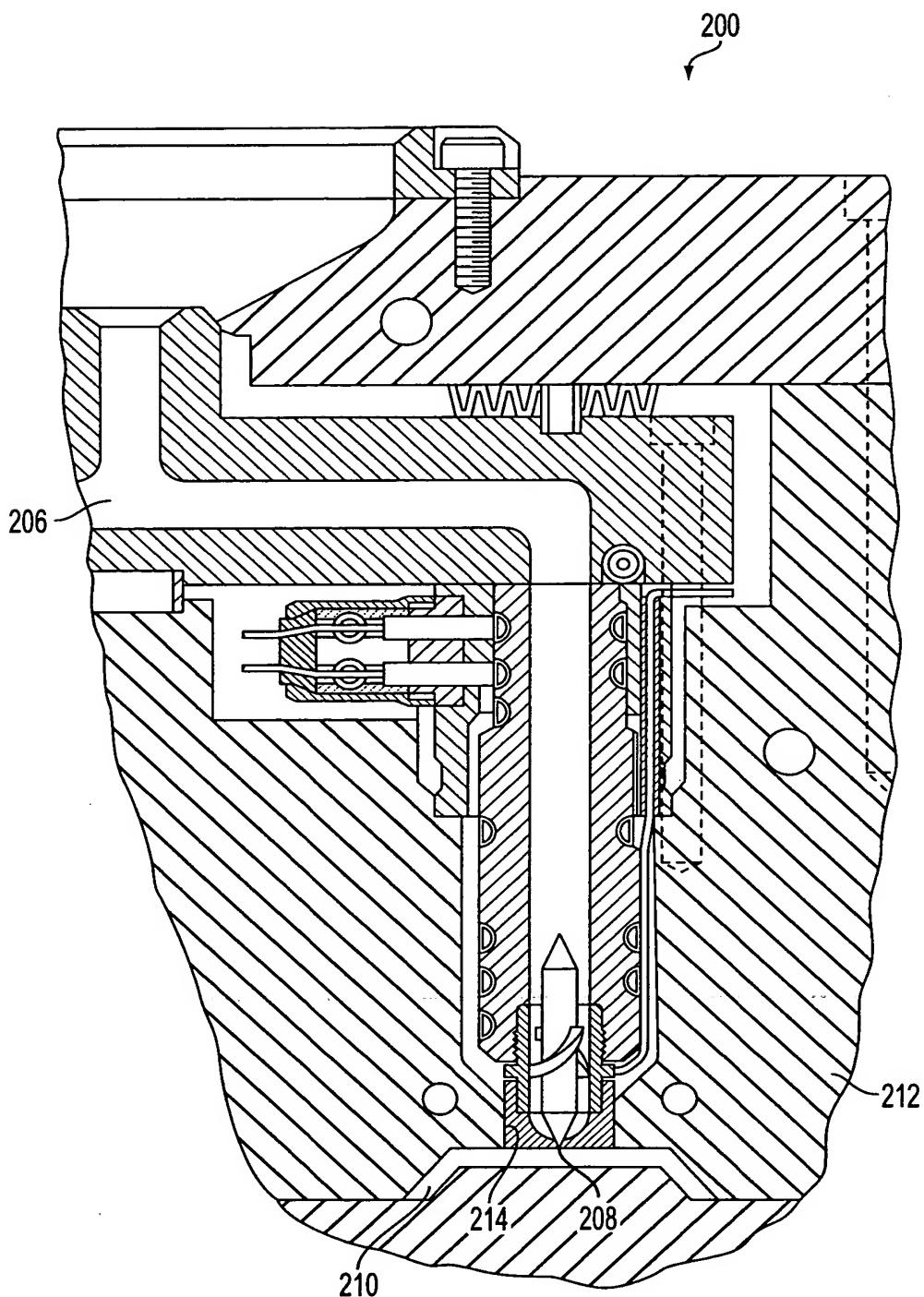


FIG. 11

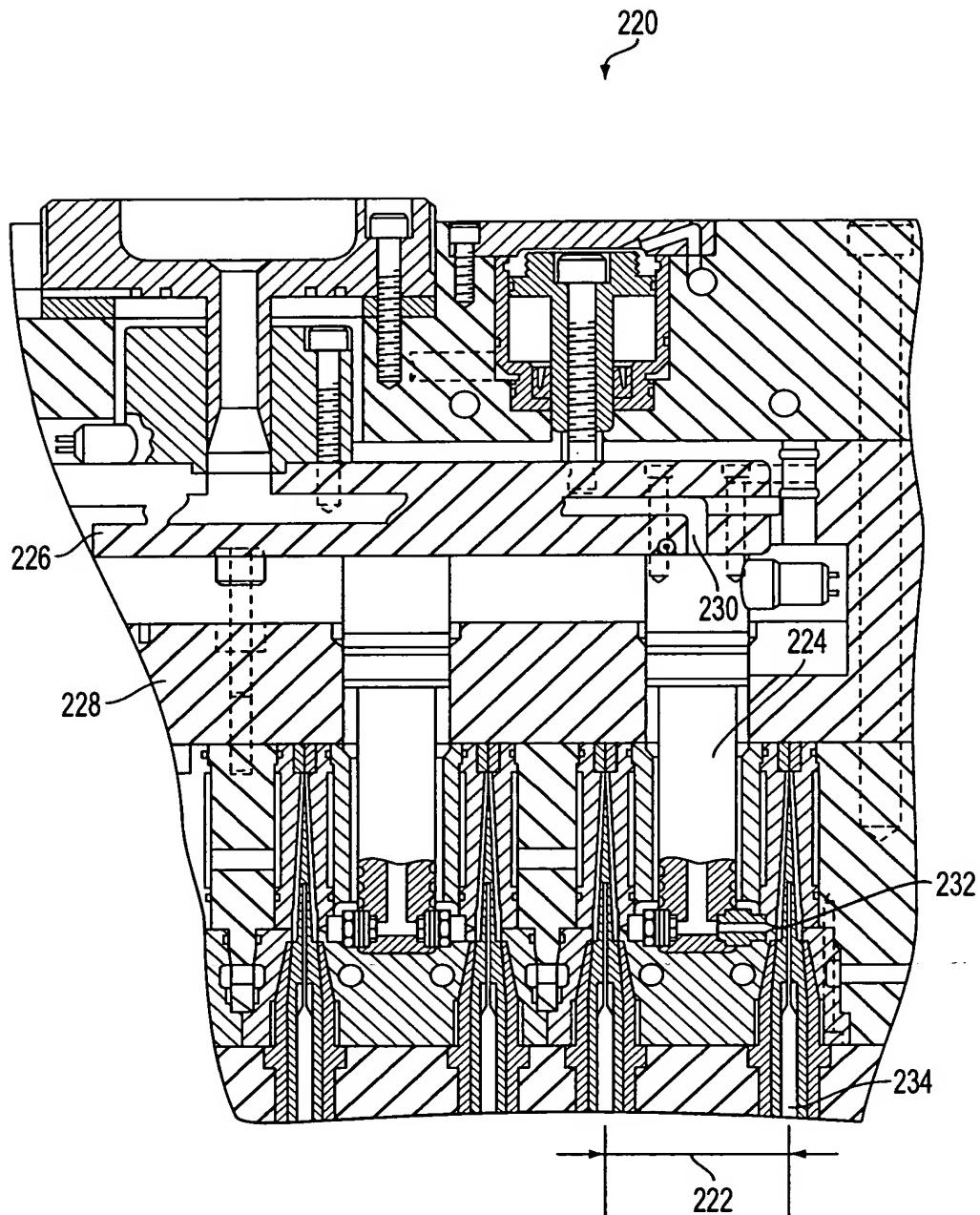


FIG. 12

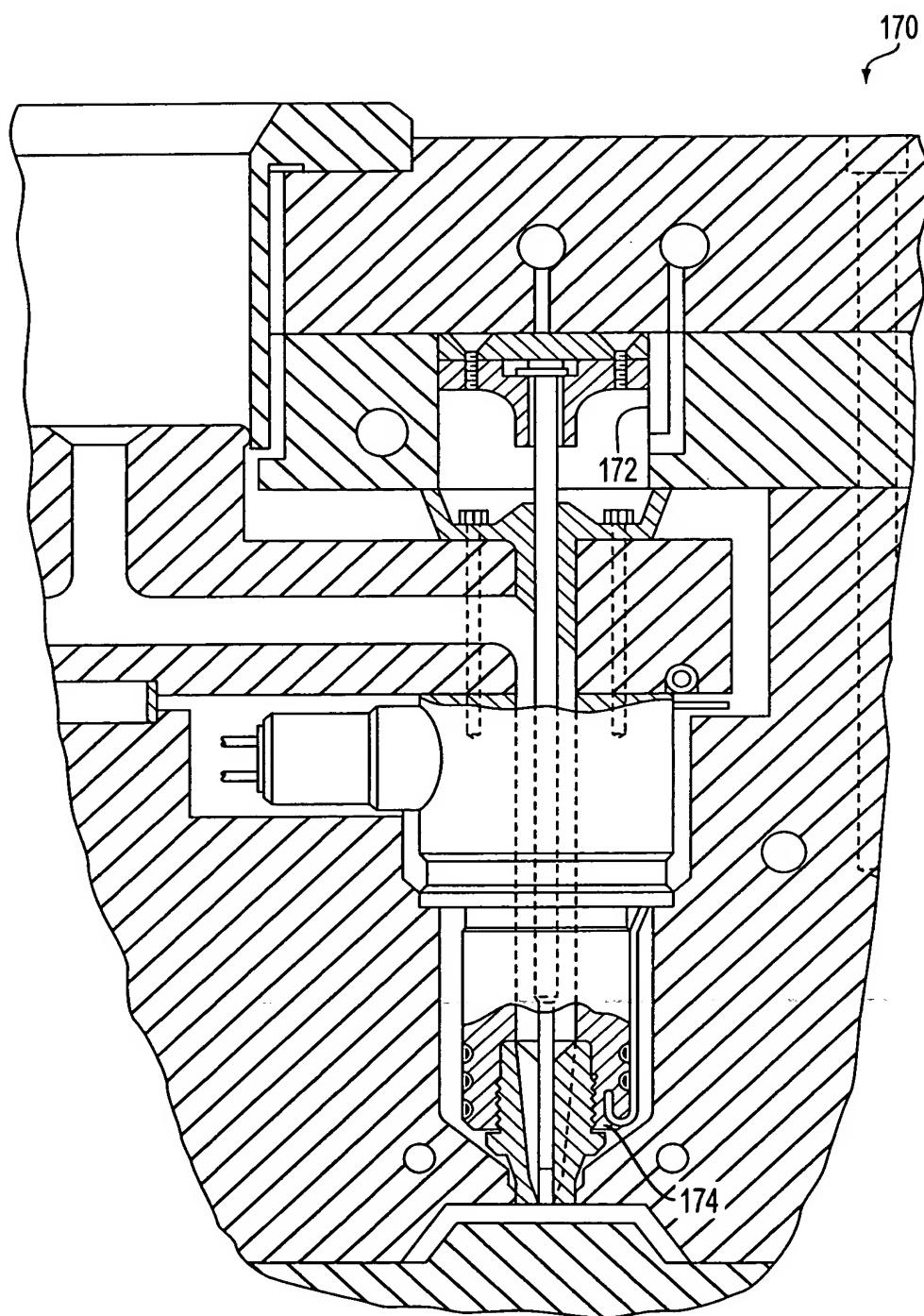


FIG. 9

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System type/Gating method Selection

Click on the number beside the system type to continue. Click on one of the links below to find out more information about the item

Click [Here](#) for more information.

[Previous Step](#)

Match	System Type	Gating Method	Suitability	Catalog Page/s
1	<u>MIM Speed Dura Hecto-Shot</u>	<u>Bi-Metallic C-Valve</u>	<u>Recommended</u>	View M8.01.05

242 244 246 248

FIG. 13

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MERLIN™ Configurator

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Gate Seal
Please select the gate seal you require, or click [HERE](#) for more information.

[Previous Step](#)

Match	Gate Seal #	Description	Diameter/Range
1	TS0664P2	MDH C VALVE TS0664 + TSL229	4.0 - 5.0 mm

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MIM Dura Hecto-Shot ® Bi-Metallic C-Valve

262

264

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- Gate Seal
- Water Cooled Gate Insert
- Locating Ring
- Nozzle
- Valve Actuator
- Manifold Plates
- Manifold
- Inlet Component

Relevant Catalog Pages

Catalog Page	Title
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve

270

Revision Date
Jun 6 2000
12:41 AM

CAD Drawings
[Download](#)

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FIG. 14

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M O L D - M A S T E R S

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Nozzle
Please select the nozzle you require, or click [HERE](#) for more information.

[Previous Step](#)

Match	Nozzle #	Description	L-Dim (mm)
282	1	NZMH1B1A060P Mim Dura Hecto Valve nozzle L=60	74
284	2	NZMH1B1A090P Mim Dura Hecto Valve nozzle L=90	104
286	3	NZMH1B1A120P Mim Dura Hecto Valve nozzle L=120	134
288	4	NZMH1B1A150P Mim Dura Hecto Valve nozzle L=150	164

MIM Dura Hecto-Shot ® Bi-Metallic C-Valve

264

Gate Seal Water Cooled Gate Insert Locating Ring
Nozzle Valve Actuator Manifold Plates Inlet Component

Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
290	View M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41 AM	Download
	View M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41 AM	Download

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FIG. 15

300

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Number Of Nozzles Selection
Please select the number of nozzles required for your system, or Click HERE for more information

[Previous Step](#)

Enter Number of Nozzles/Drops desired in System

302 2 Nozzles
304 4 Nozzles

Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	M8.01.05 Mim Dura Hecto Valve nozzle L=120	Jun 6 2000 12:41AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41AM	Download

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FIG. 16

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Manifold Configuration Selection
Please choose a suitable manifold configuration from the icons shown below or click [HERE](#) for more detailed information.

[Previous Step](#)

Standard Sub Manifolds

 324

Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	M8.01.05 Mim Dura Hecto Valve nozzle L=120	Jun 6 2000 12:41AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41AM	Download

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FIG. 17

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Merlin™ Home Merlin™ Support

Sub Manifold Pitch Selection
Click [HERE](#) for more detailed information

[Previous Step](#)

Click the Next button to accept this dimension or enter a smaller pitch dimension for your application if required.

Off Pitch X: mm [▼](#)

[Next](#) 342

Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	M8.01.05 Mim Dura Hecto Valve nozzle L=120	Jun 6 2000 12:41AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41AM	Download

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FIG. 18

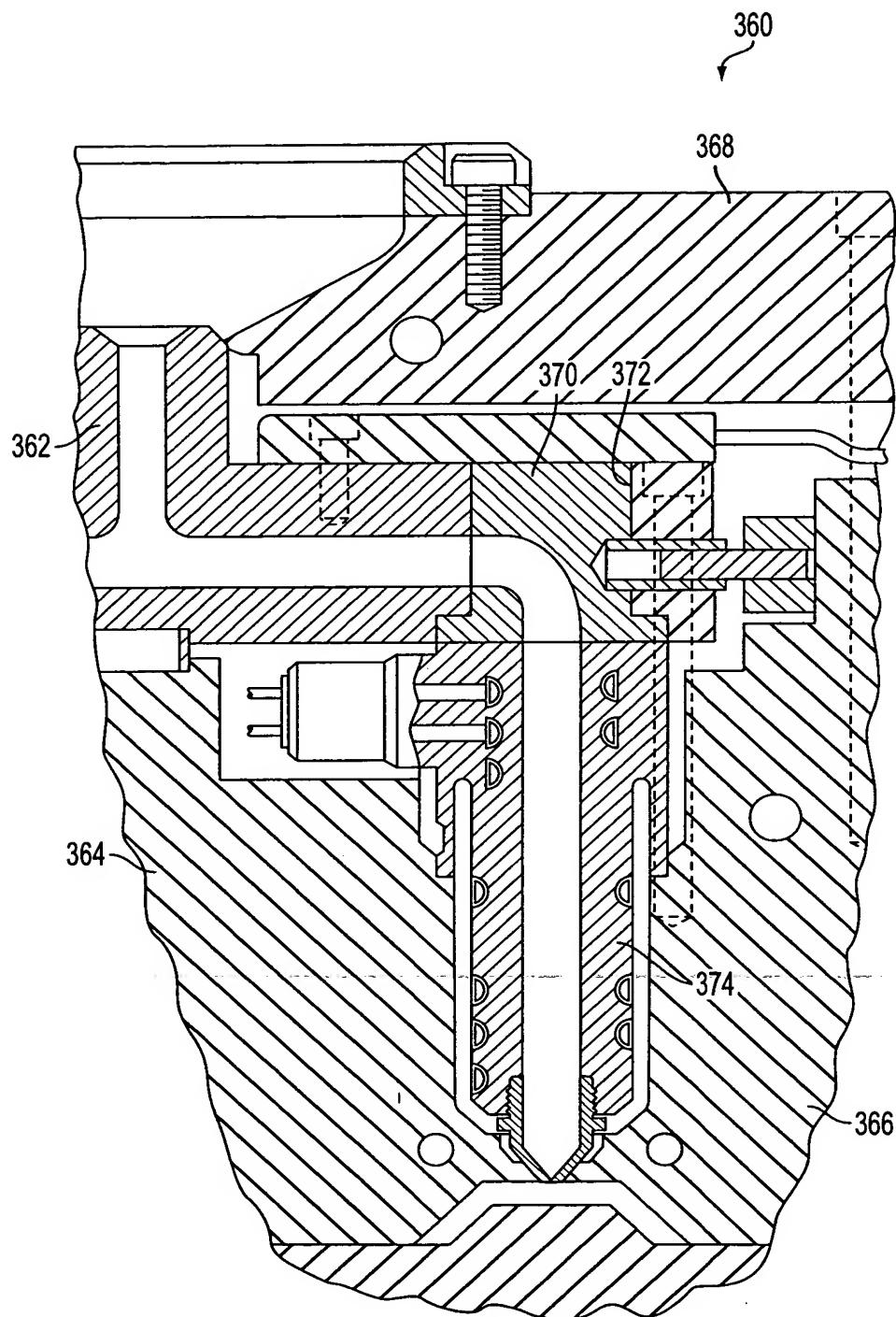


FIG. 19

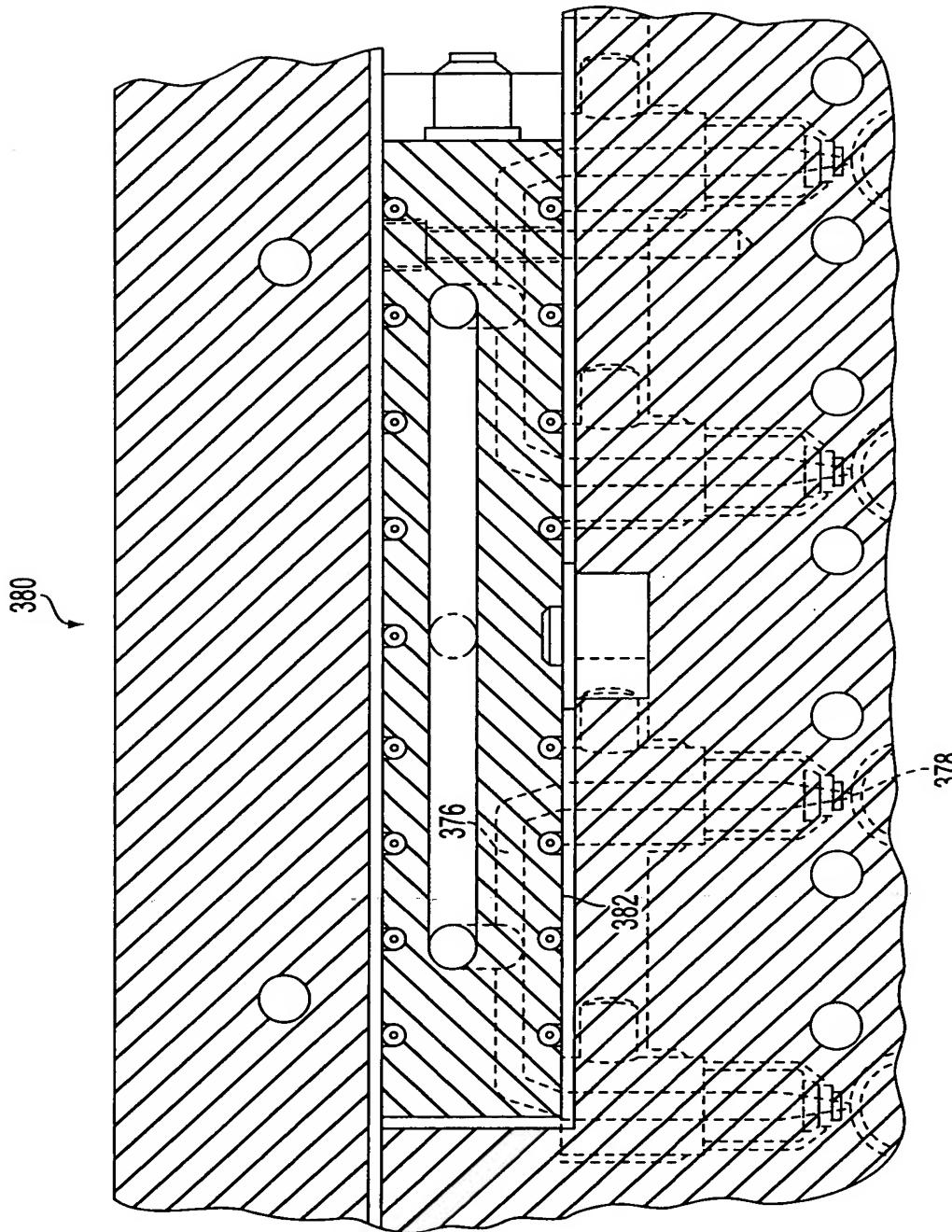


FIG. 20

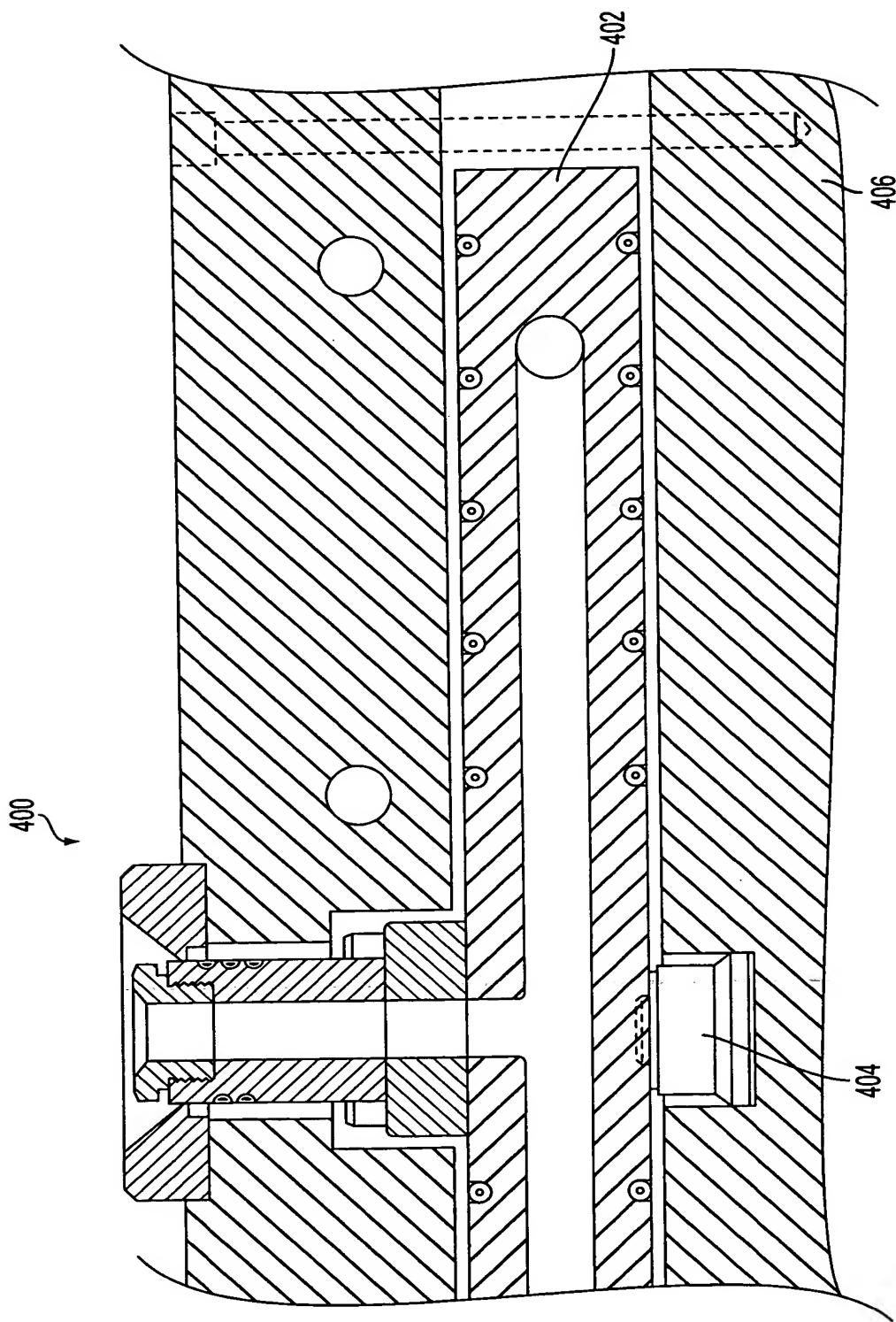


FIG. 21

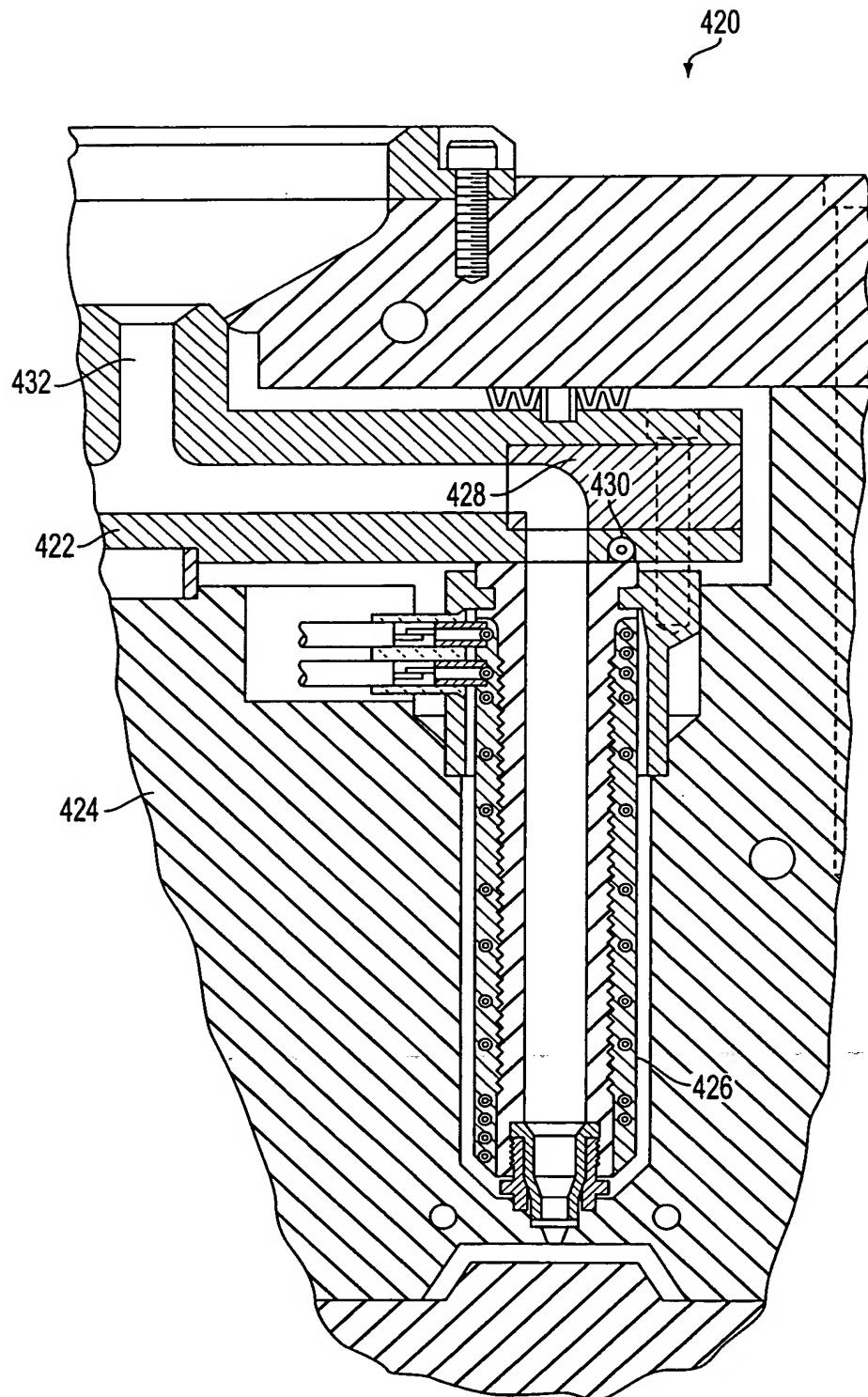


FIG. 22

440

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Water Cooled Gate Insert (Optional)
Please select the gate insert you require, or click [HERE](#) for more information.

[Previous Step](#)

Match Gate Description
Insert #

Water Cooled Gate Inserts are not available for this application.

[NEXT](#)

D-Dimension

MIM Dura Hecto-Shot ® Bi-Metallic C-Valve

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Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	M8.02.02 2-Inline Sub Manifold	Jun	Download
View	M8.01.05 Mim Dura Hecto-Valve nozzle L=120	Jun 6 2000 12:41AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41AM	Download

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FIG. 23

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MERLIN™ Configurator

[Merlin™ Home](#) [Merlin™ Support](#)

Valve Actuator

Please select the valve actuator you require, or click [HERE](#) for more information.

[Previous Step](#)

Match Valve Actuator #	Description	Valve Pin Max. Length	Valve Pin Diameter	Valve Pin Stroke
<input checked="" type="checkbox"/> 1	HY6600D Hydraulic/Pneumatic Cylinder Assembly	355.0 mm	7.940 mm	20.0 mm

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MOLD - MASTERS

MIM Dura Hecto-Shot ® Bi-Metallic C-V

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Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	M8.02.02 2-Inline Sub Manifold	Jun	Download
View	M8.01.05 Mim Dura Hecto Valve nozzle L=120	Jun 6 2000 12:41AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41AM	Download

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FIG. 24

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Inlet Component
 Please select the Inlet Component you require, or click [HERE](#) for more information.

[Previous Step](#)

Matches	Description
1	Manifold center heater

484

Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	12.01.12 Hydraulic/Pneumatic Cylinder Assembly	98-Oct-22	Download
View	M8.02.02 2-Inline Sub Manifold	Jun	Download
View	M8.01.05 Mim Dura Hecto Valve nozzle L=120	Jun 6 2000 12:41 AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41 AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41 AM	Download

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MOLD - MASTERS

MIM Dura Hecto-Shot ® Bi-Metallic C-Valve

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FIG. 25

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MERLIN™ Configurator

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Inlet Component Manifold center heater
Please select the Inlet Component you require, or click [HERE](#) for more information.

[Previous Step](#)

Matches	Inlet Component #	Machine Nozzle Radius
1	BP58.500P	0.5 inch
2	BP58.750P	0.75 inch

Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	12.01.12 Hydraulic/Pneumatic Cylinder Assembly	98-Oct-22	Download
View	M8.02.02 2-Inline Sub Manifold	Jun	Download
View	M8.01.05 Mim Dura Hecto Valve nozzle L=120	Jun 6 2000 12:41 AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41 AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41 AM	Download

MOLD - MASTERS™

MIM Dura Hecto-Shot ® Bi-Metallic C-Valve

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FIG. 26

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MERLIN™ Configurator

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Location Ring
 Please select the locating ring you require, or click [HERE](#) for more information.

[Previous Step](#)

Matches	Locating Ring #	Description	Diameter (mm)
1	LR0070	Loc. ring for machine nozzle pad	101.34
2	LR0071	Loc. ring for machine nozzle pad	109.75
3	LR0081	Locating Ring for Valve system with BP58, inch	101.36
4	LR0082	Locating Ring for Valve system with BP58, metric	109.77
5	LR0086	Locating Ring for Sprue system with BP58, inch	101.36
6	LR0087	Locating Ring for Sprue system with BP58, metric	109.77

Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	10.01.11 Manifold center heater	98-Oct-22	Download
View	12.01.12 Hydraulic/Pneumatic Cylinder Assembly	98-Oct-22	Download
View	M8.02.02 2-Inline Sub Manifold	Jun	Download
View	M8.01.05 Mim Dura Hecto Valve nozzle L=120	Jun 6 2000 12:41 AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41 AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41 AM	Download

MOLD - MASTERS

MIM Dura Hecto-Shot ® Bi-Metallic C-Valve

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FIG. 27

540

MERLIN™ Configurator

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Molding Elevation
 If you wish to include a Molding Elevation, please enter it below and choose the Unit of Measure.

Click [HERE](#) for more information.

[Previous Step](#)

There is no Molding Elevation range available for this application. Click Next to continue or try another application.

[Next](#)

MOLD - MASTERS

MIM Dura Hecto-Shot ® Bi-Metallic C-Valve

Gate Seal Water Cooled Gate Insert Locating Ring
 Nozzle Valve Actuator Manifold Plates
 Manifold Inlet Component

Relevant Catalog Pages

Catalog Page	Title	Revision Date	CAD Drawings
View	M9.01.08 Locating Ring for Valve system with BP58, inch	Jun 6 2000 12:41 AM	Download
View	10.01.11 Manifold center heater	98-Oct-22	Download
View	12.01.12 Hydraulic/Pneumatic Cylinder Assembly	98-Oct-22	Download
View	M8.02.02 2-Inline Sub Manifold	Jun	Download
View	M8.01.05 Mim Dura Hecto Valve nozzle L=120	Jun 6 2000 12:41 AM	Download
View	M8.01.05 MDH C VALVE TS0664 + TSL229	Jun 6 2000 12:41 AM	Download
View	M8.01.05 MIM Dura Hecto-Shot ® Bi-Metallic C-Valve	Jun 6 2000 12:41 AM	Download

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MERLIN™ Configurator

M O L D - M A S T E R S

[Merlin™ Home](#) [Merlin™ Support](#)

Application Information Form
Please fill in the relevant information and check for correctness.

[Previous Step](#)

Action To Be Taken. For more information click [HERE](#)

Company Name: Contact Name:

Mold Maker: Molder: End User:

Customer Ref. #: Requested Delivery Date: (in MM/DD/YYYY format)

Plastic Part #: Plastic Part Name: Industry Segment:

Additional information

Material	Part	Mold	Other
<u>Material type :</u>	<u>Shot Weight :</u>	<u># of Cavities</u>	<u>Gate Cosmetics</u>
Acrylonitrile Butadiene Sty.	500 - 3500 g	<input type="text"/>	<input type="text"/>
<u>Grade</u>	<u>Est. Injection Time (sec.)</u>	564 <u>Sub-runners</u>	566 <u>Gate Cooling</u>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<u>Supplier</u>	<u>Wall Thickness</u>	<u>Gate</u>	<u>Dim. Stability</u>
<input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> mm <input type="text"/>	<input type="text"/>
<u>Process Temp</u>	<u>Flow Length</u>	<u>Land</u>	<u>Supp. Screws</u>
<input type="text"/> C <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> mm <input type="text"/>	<input type="text"/>

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MERLIN™ Configurator

MOLD - MASTERS

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Summary Information Form

Please fill in the relevant information and check for correctness.

[Previous Step](#) [View Printable Version](#)

Action To Be Taken. For more information click [HERE](#)

Step 1	582	Step 2	584	Step 3	586	Step 4	588
Save		Quote		Review		Order	

Lead Time: No Lead Time Available. Quote #: 0040003107

Not Reviewed.

Order #:

PO #

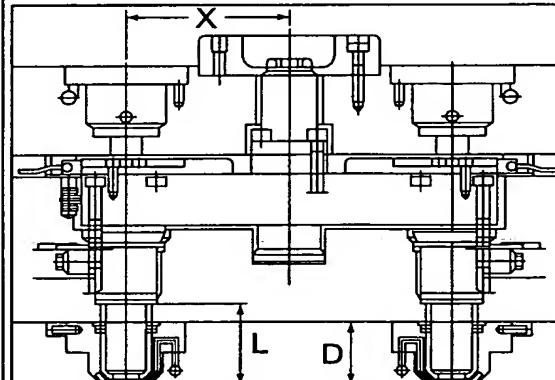
[Generate Drawings](#) Price: \$6,681.00 USD

Company Name: 590 Contact Name:

Mold Maker: Molder: End User:

Customer Ref. #: Requested Delivery Date:

Plastic Part #: Plastic Part Name: Industry Segment:



Required Parts List		
Part Number	Description	Options
TS0664P2	MDH C VALVE TS0664 + TSL229	N/A
NZMH1B1A120P	Mim Dura Hecto Valve nozzle L=120	N/A
MNMDH21200BL4VP	2-Inline Sub Manifold	N/A
HY6600D	Hydraulic/Pneumatic Cylinder Assembly	N/A
BP58.750P	Manifold center heater	N/A
LR0081	Locating Ring for Valve system with BP58, inch	N/A

Additional Information

Material	Part	Mold	Other
<u>Material type :</u> Acrylonitrile Butadiene Styr.	<u>Shot Weight :</u> 500 - 3500g	<u># of Cavities :</u>	<u>Gate Cosmetics :</u>
<u>Grade:</u>	<u>Est. Injection Time (sec.):</u>	<u>Sub-runners:</u>	<u>Gate Cooling:</u>
<u>Supplier:</u>	<u>Wall Thickness:</u>	<u>Gate:</u>	<u>Dim. Stability:</u>

FIG. 30

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Generated Drawings

Choose any of the file options below to download or view online

Type	Drawings	Options
TIF	<u>GT_sys_valve_config_HY6600_0077.tif</u> (1449539 Bytes)	Download 602 View 604
TIF	<u>GT_sys_valve_config_SYSTEM_ASSEMBLY.tif</u> (1170968 Bytes)	Download View
DXF	<u>GT_sys_valve_config_HY6600_0077.dxf</u> (1095118 Bytes)	Download View
DXF	<u>GT_sys_valve_config_SYSTEM_ASSEMBLY.dxf</u> (1786603 Bytes)	Download View
IGS	<u>GT_sys_valve_config_HY6600_0077.igs</u> (2487962 Bytes)	Download View
IGS	<u>GT_sys_valve_config_SYSTEM_ASSEMBLY.igs</u> (2302724 Bytes)	Download View
WRL	<u>GeneralAssembly.wrl</u> (2461551 Bytes)	Download View

FIG. 31

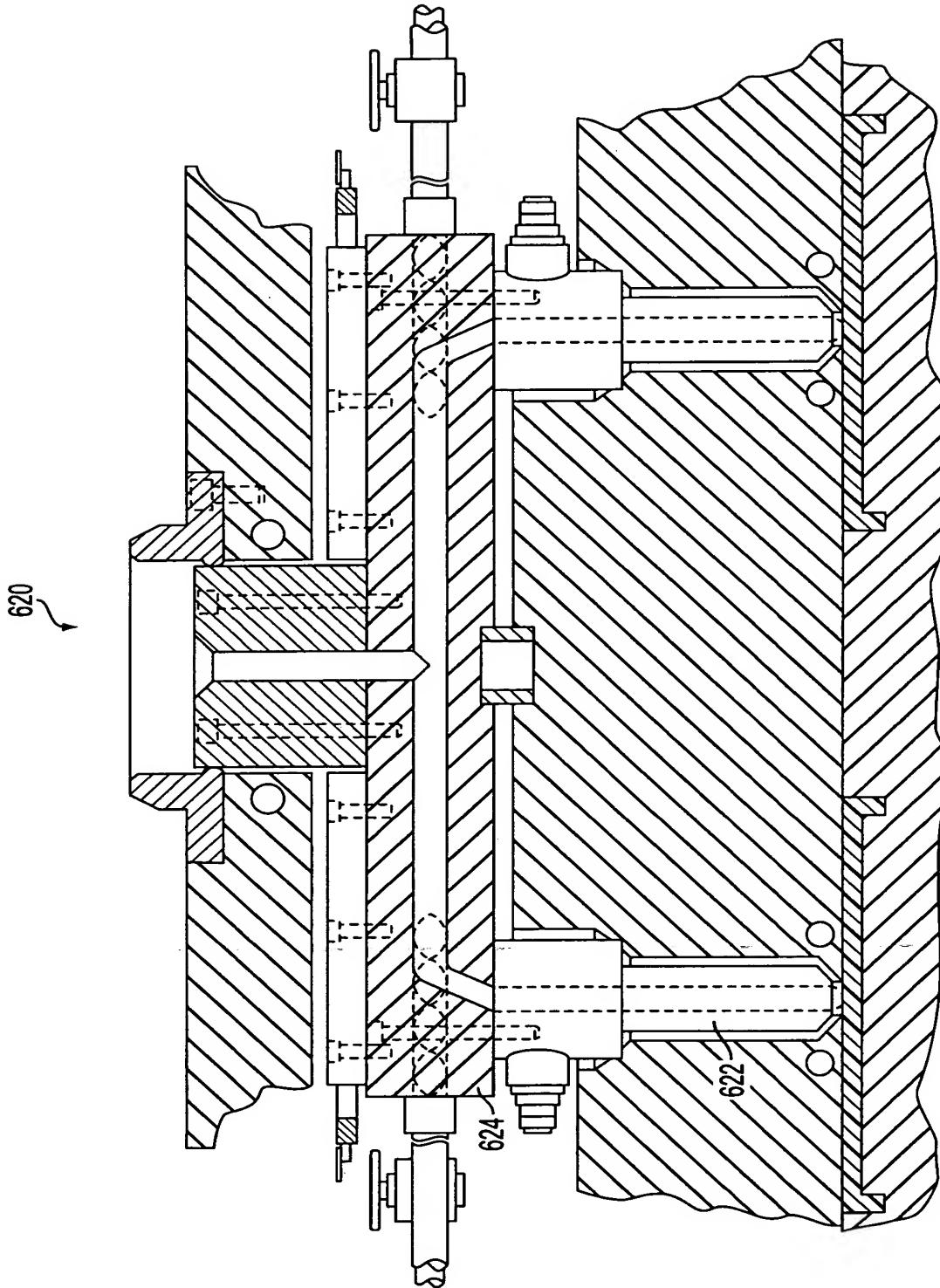


FIG. 32

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MERLIN™ Configurator

M O L D - M A S T E R S

Configurator

Please make a selection. For detailed information concerning your possible choices click [here](#).

Action	Description
Configure New System	Allows you to configure a new system and save it to your account.
Existing Configurations	Allows you to load an existing system from a list of saved systems.

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FIG. 33

660

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MERLIN™ Configurator

M O L D - M A S T E R S

Existing Configurations

Please Make a selection. For detailed information concerning your possible choices click [HERE](#)

Action	Configuration Name	Quote #	Order #	Date/Time	Status
<input type="button" value="Load"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	Previous Config	0040003107	666	6/12/00 2:39:47 PM	664
<input type="button" value="Load"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	SAP Test	0040003098	662	6/9/00 11:31:20 AM	
<input type="button" value="Load"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	2 drop hect 190 pitch	0040003093		6/8/00 1:53:36 PM	

FIG. 34

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MERLIN™ Configurator

M O L D - M A S T E R S

Summary Information Form

Please fill in the relevant information and check for correctness.

Action To Be Taken. For more information click HERE

Step 1	682	Step 2	684	Step 3	686	Step 4	688
<input type="button" value="Save"/>		<input type="button" value="Quote"/>		<input type="button" value="Review"/>		<input type="button" value="Order"/>	

Lead Time: No Lead Time Available. Quote #: 0040003107

Not Reviewed.

Order #:

PO #:

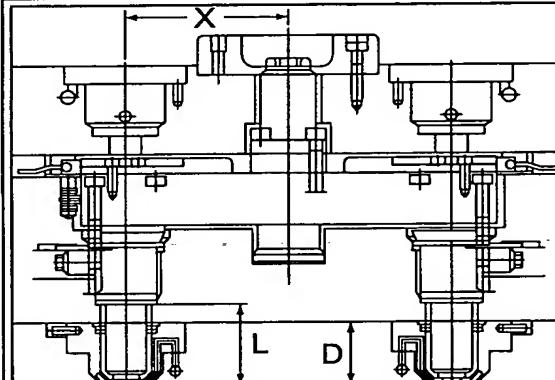
 Price: \$6,681.00 USD

Company Name: 670 Contact Name:

Mold Maker: Molder: End User:

Customer Ref. #: Requested Delivery Date:

Plastic Part #: Plastic Part Name: Industry Segment:



Required Parts List		
Part Number	Description	Options
TS0664P2	MDH C VALVE TS0664 + TSL229	N/A
NZMH1B1A120P	Mim Dura Hecto Valve nozzle L=120	N/A
MNMDH21200BL4VP	2-Inline Sub Manifold	N/A
HY6600D	Hydraulic/Pneumatic Cylinder Assembly	N/A
BP58.750P	Manifold center heater	N/A
LR0081	Locating Ring for Valve system with BP58, inch	N/A

Additional Information

Material	Part	Mold	Other
<u>Material type:</u> Acrylonitrile Butadiene Sty.	<u>Shot Weight :</u> 500 - 3500g	<u># of Cavities :</u>	<u>Gate Cosmetics :</u>
<u>Grade:</u>	<u>Est. Injection Time (sec.):</u>	<u>Sub-runners:</u>	<u>Gate Cooling:</u>
<u>Supplier:</u>	<u>Wall Thickness:</u>	<u>Gate:</u>	<u>Dim. Stability:</u>

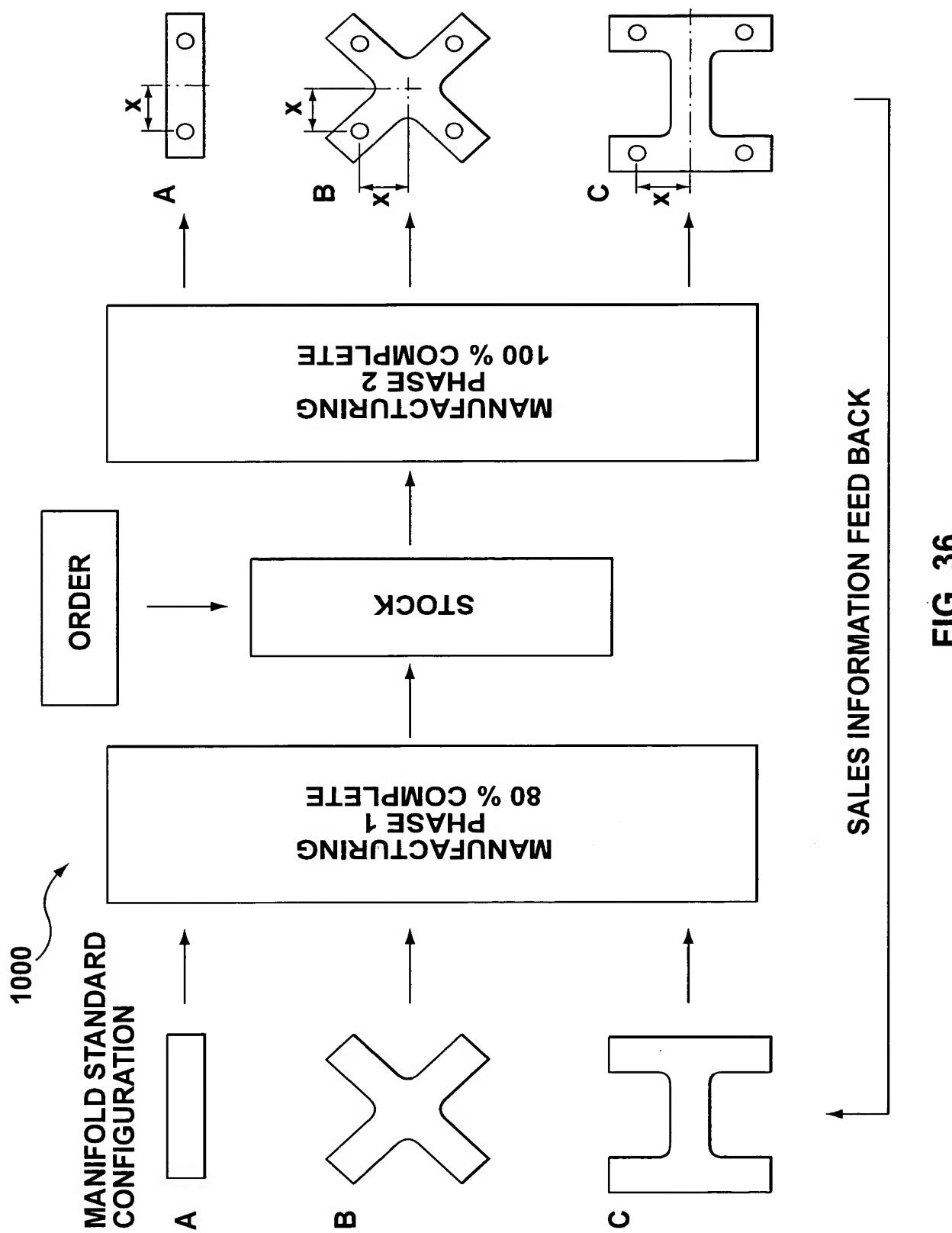


FIG. 36

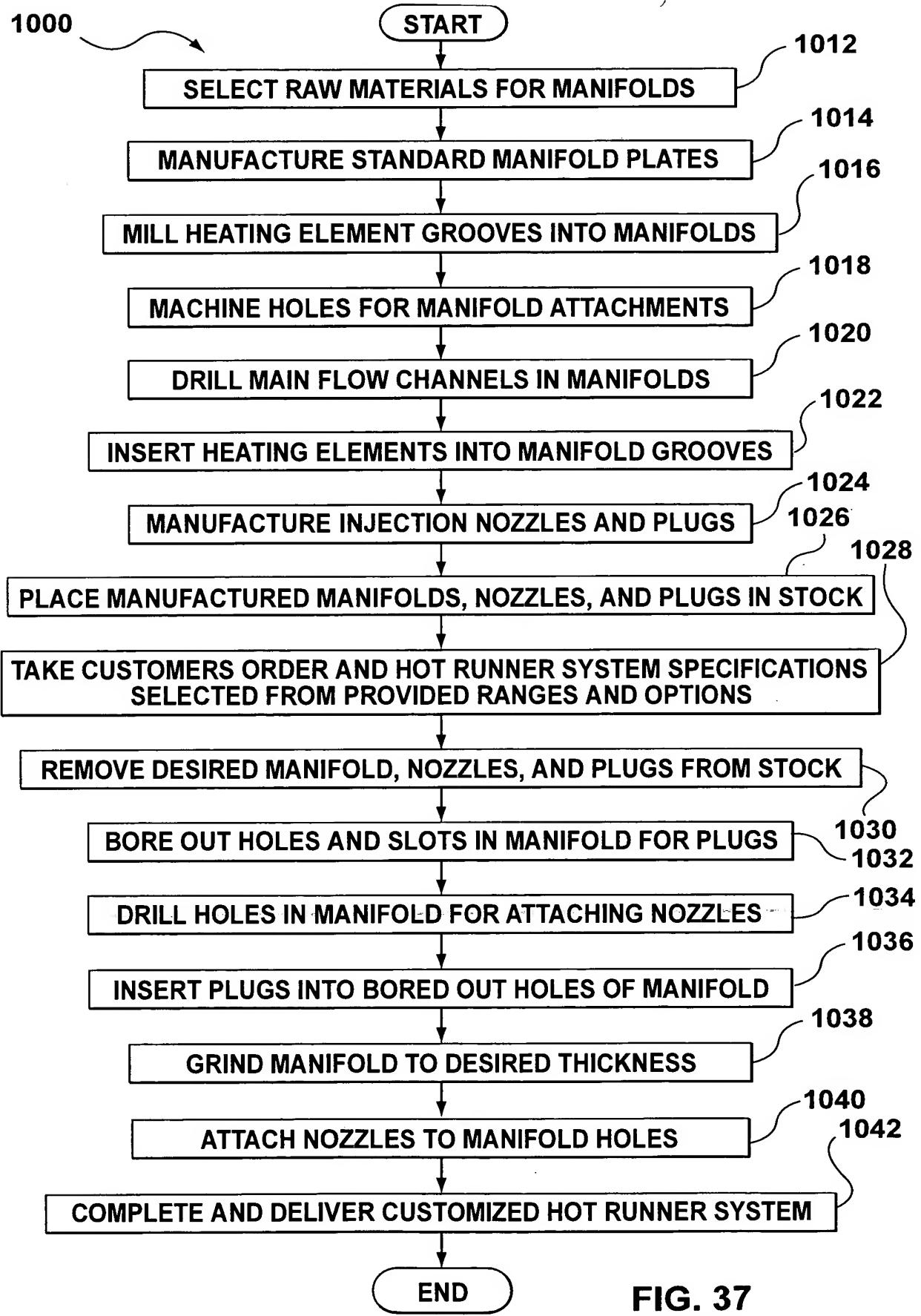


FIG. 37

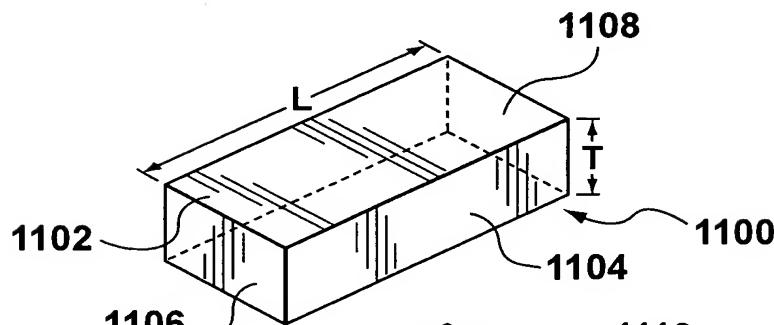


FIG. 38A

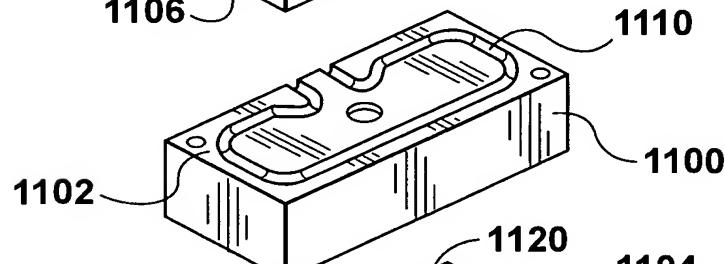


FIG. 38B

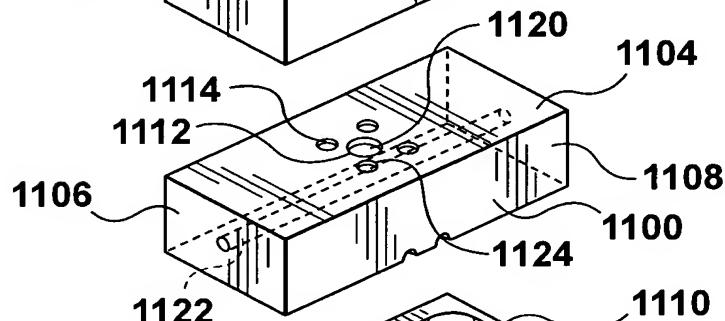


FIG. 38C

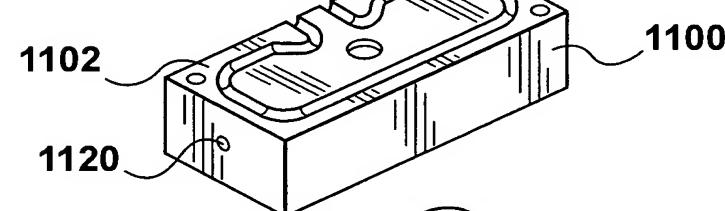


FIG. 38D

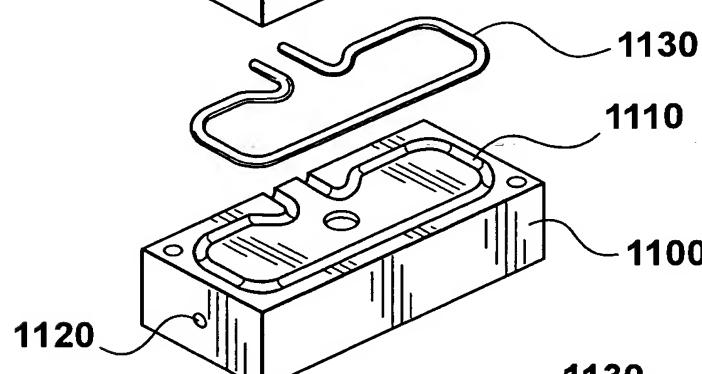


FIG. 38E

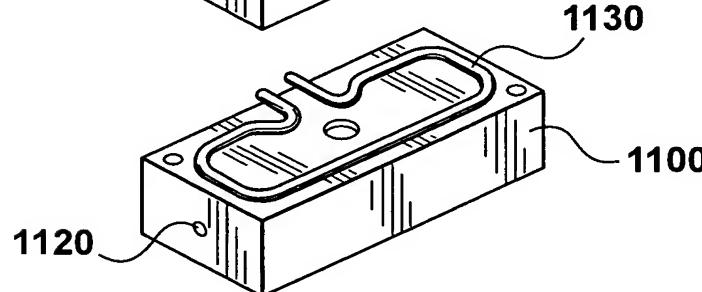


FIG. 38F

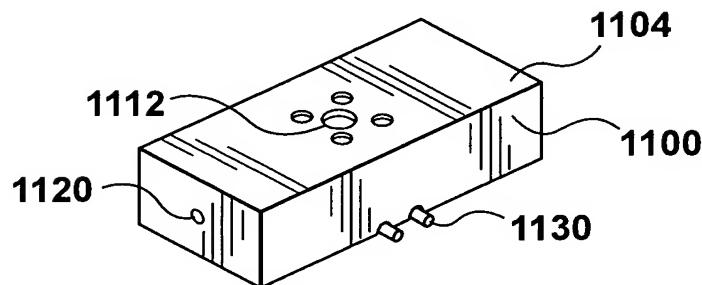


FIG. 38G

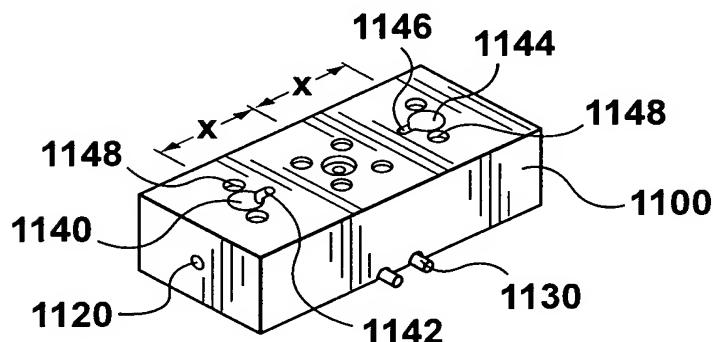


FIG. 38H

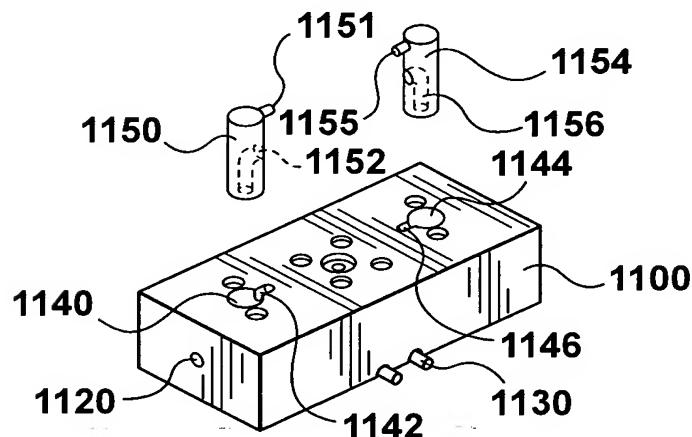


FIG. 38I

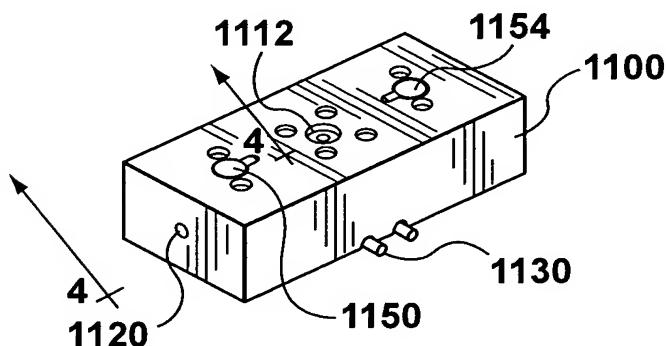
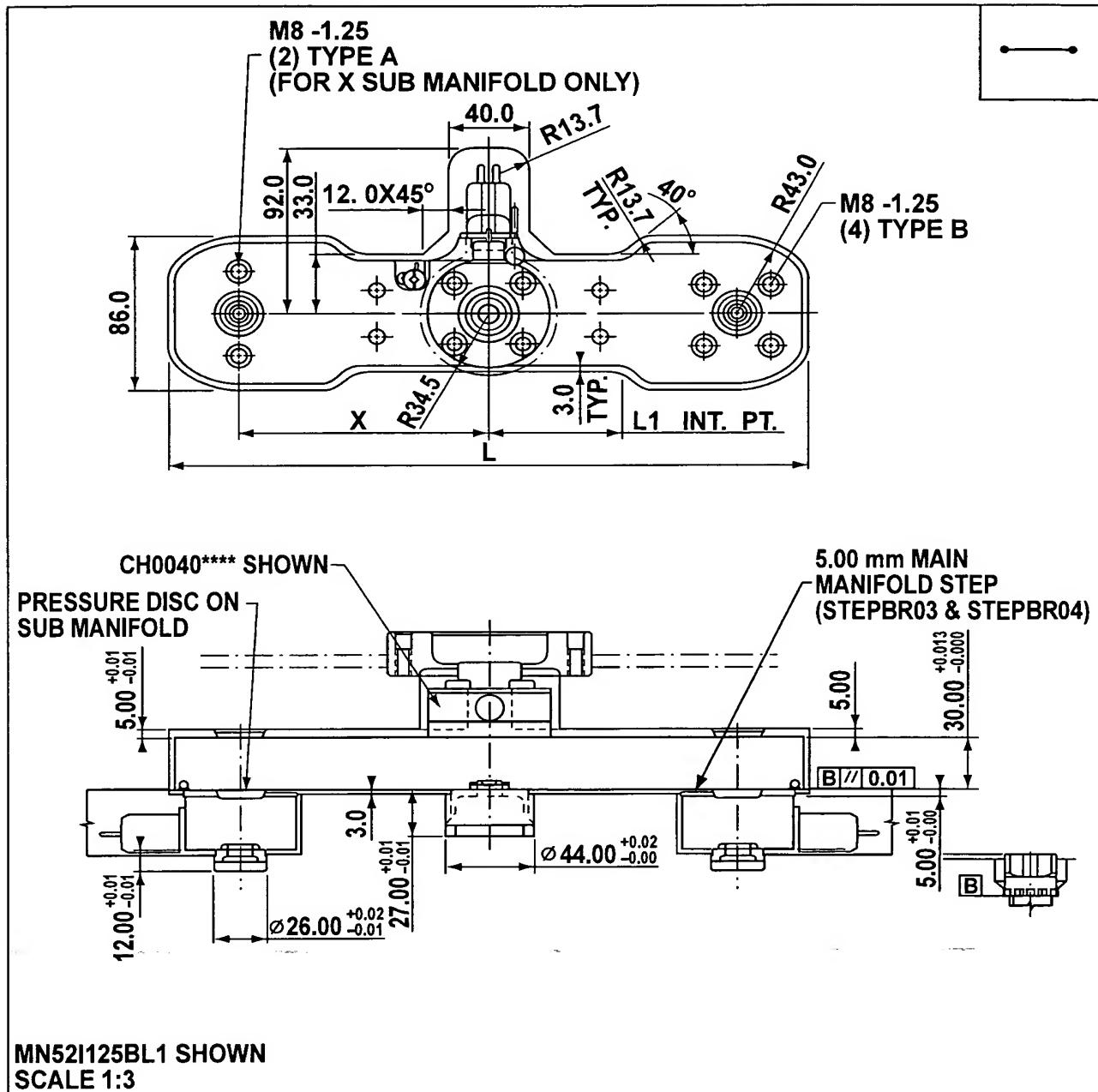


FIG. 38J



MAIN MANIFOLD OPTIONS					
SPEED OPTION	MANIFOLD BLANK #	X (PITCH RANGE)	L	L1	POWER (WATTS@220V)
✓	MN52I 125BL1	100.00-125.00	322.0	65.7	1650
✓	MN52I 150BL1	125.01-150.00	372.0	90.7	2450
✓	MN52I 175BL1	150.01-175.00	422.0	115.7	2750
✓	MN52I 200BL1	175.01-200.00	472.5	140.7	2500
✓	MN52I 225BL1	200.01-225.00	522.5	165.7	2600
✓	MN52I 250BL1	225.01-250.00	572.5	190.7	2800

FIG. 38K

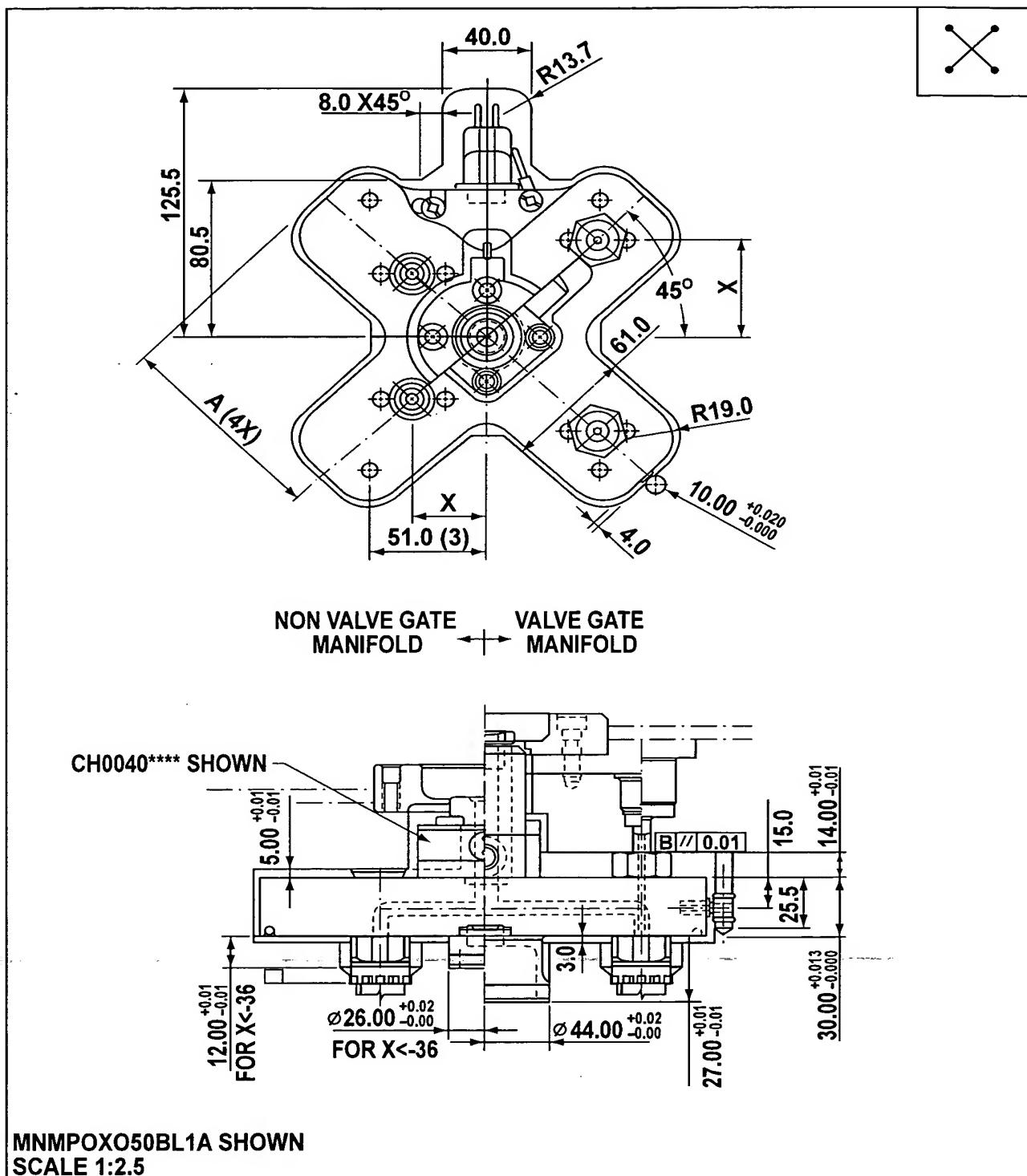


FIG. 38L

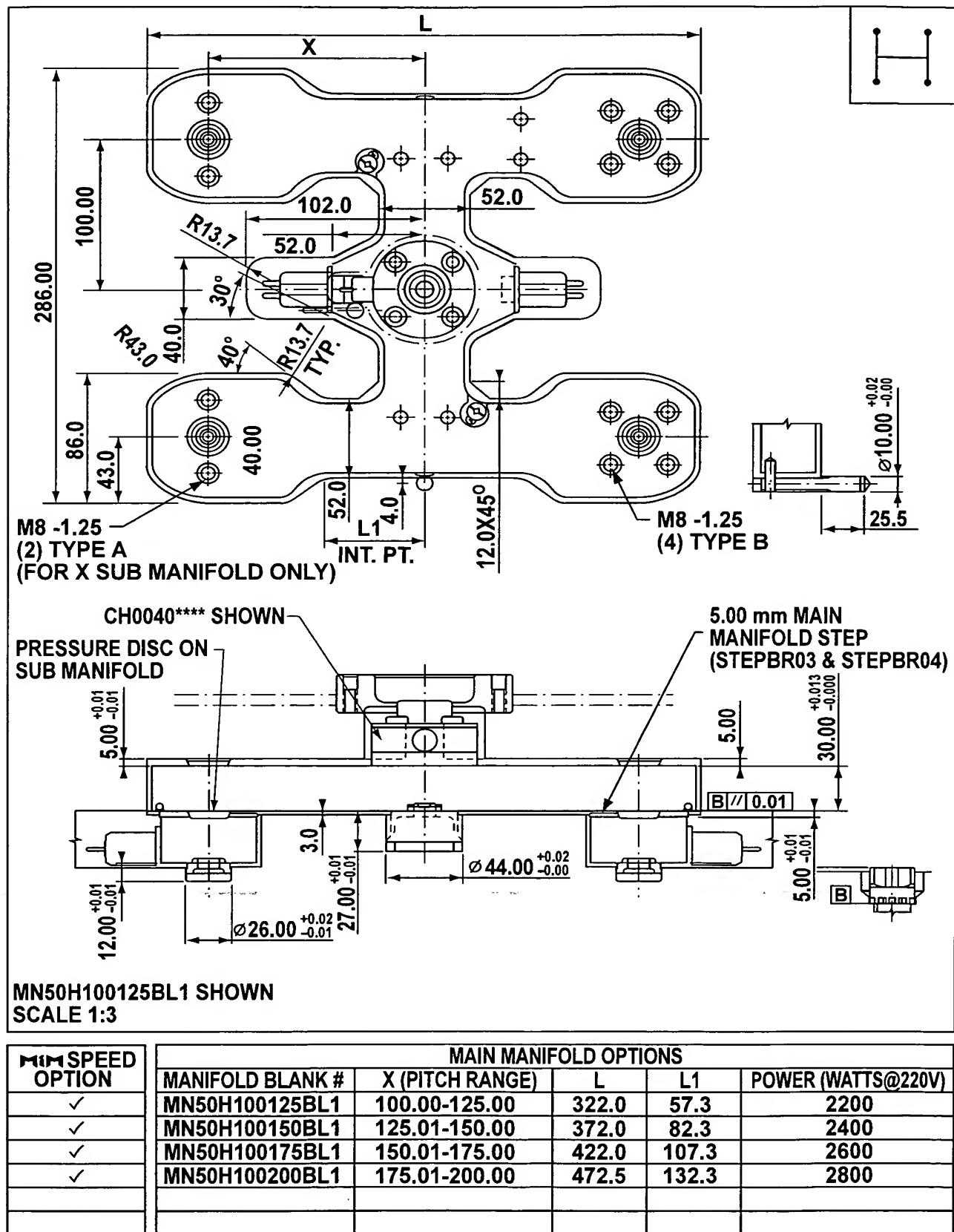


FIG. 38M

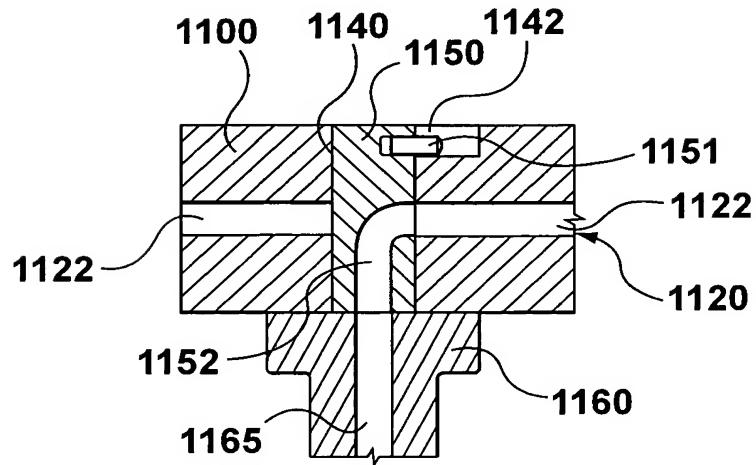


FIG. 39

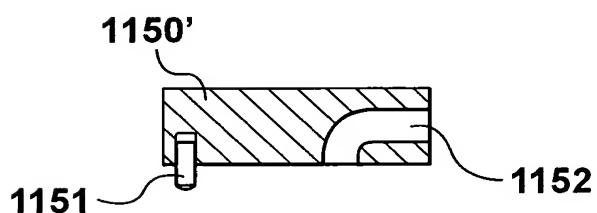


FIG. 40

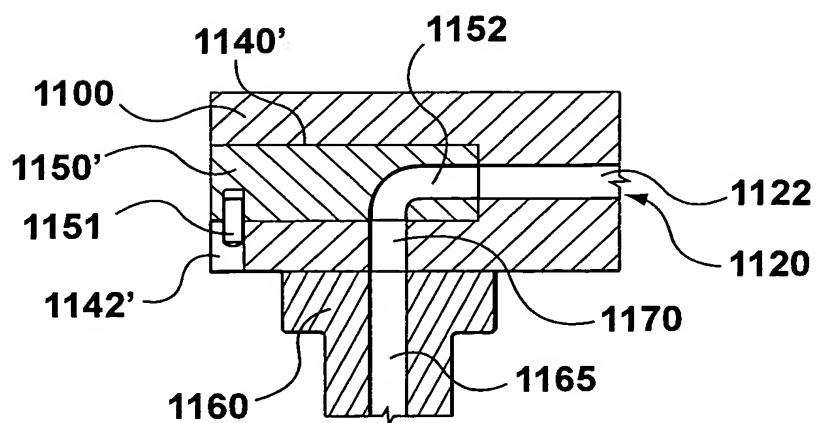


FIG. 41